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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,786	03/06/2002	Junichi Kimura	2002_0273A	7157

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EXAMINER

TRAN, THANH Y

ART UNIT PAPER NUMBER

2841

DATE MAILED: 02/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/090,786

Applicant(s)

KIMURA, JUNICHI

Examiner

Thanh Y. Tran

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 2841

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “first lands”, “first recess” in claim 2; “second land”, “internal layer” in claim 3; “second recesses”, “first recess” in claim 6 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 2-3, and 6-10 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 2, the specification fails to provide support for the limitation of “first lands near the first recess on both sides of said substrate”.

In claim 3, the specification fails to provide support for the limitation of “a second land *near* said electrode on said internal layer, said second land being connected to said internal pattern and said electrode”.

In claim 6 the specification fails to provide support for the limitation of “said substrate has a plurality of *second recesses* formed at the first recess, and the *second recesses* extend from in upper side to an lower side of said substrate”.

4. Claims 2-3, 6-10, 15, and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 is indefinite because of the phrase “first lands *near* the first recess on both sides of said substrate”. The word “near” does not define exactly where “first lands” positioned at. What Applicant means by “first lands” and “first recess”?

Claim 3 is indefinite because of the phase “*a second land near* said electrode on said internal layer, said second land being connected to said internal pattern and said electrode”. The word “*near*” does not define exactly where “*a second land*” positioned at. What Applicant means by “*a second land*”?

Claim 6 is unclear as to what Applicant means by “said substrate has *a plurality of second recesses formed at the first recess*, and the *second recesses* extend from in upper side to an lower side of said substrate”?

Claim 10 is unclear as to what Applicant means by “shield case has a lateral side thereof being *rougher* than an upper side thereof”?

Claims 15 and 20 are unclear as to what Applicant means by “forming the hole includes the sub-step of drilling the round holes *in alternately*”?

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

6. Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Gotoh et al (U.S. 6,320,739).

With respect to claim 1, Gotoh et al discloses a module (Fig. 5) comprising a substantially four-sided substrate having a first recess (as labeled in figure 5) formed at a lateral side thereof, an electrode (42) at the first recess of the substrate (1), isolated by an absent distance (as labeled in figure 5) from the lateral side of the substrate (1); and an electronic component (2) mounted on the substrate (1).

With respect to claim 2, as best understood, Gotoh et al discloses a module (Fig. 5) further comprising, first lands (4) *near* the first recess on both sides of the substrate (1), the lands (4) being coupled with the electrode (42).

With respect to claim 3, as best understood, Gotoh et al discloses a module (Fig. 5) wherein the substrate is a multi-layer substrate, and wherein the multi-layer substrate includes an

Art Unit: 2841

internal layer (5); an internal pattern (as labeled in figure 5) on the internal layer (5); and a second land (4) near the electrode on the internal layer (5), the second land being connected to the internal pattern and the electrode

With respect to claim 4, figure 5 of Gotoh et al further shows another electrode at the lateral side of the substrate (1).

With respect to claim 5, figure 5 of Gotoh et al shows another electrode at a corner of the substrate (1).

With respect to claim 6, as best understood, figure 5 of Goto et al shows that the substrate has a plurality of second recesses formed at the first recess, and the second recesses extend from in upper side to an lower side of the substrate.

7. Claims 11-13 and 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Wajima (U.S. 6,369,335).

With respect to claims 11 and 16, Wajima teaches a method comprising the steps of:
forming a hole at a joint between substrates in a mother board which incorporates the substrate each having substantially a four-sided shape (see Figs. 1-3, col. 2, line 60 – col. 4, line 16);

forming a metal-plated portion around the hole and on a internal side of a lateral side of the hole (see col. 4, line 50 - col. 5, line 30);

covering- the metal plated portion with a resist (see col. 5, lines 23-26);

curing the resist and placing a mask over the resist and then exposing the resist to light to develop an absent region along the joint (see col. 5, lines 27-51);

Art Unit: 2841

removing the resist from the absent region; and removing a portion of the metal-plated portion, the portion corresponding to the absent region (see col. 5, lines 41-51).

With respect to claim 12, 17, Wajima teaches a method comprising the steps of cutting the joint of the mother board at a smaller width than the absent region (see col. 5, line 52 – col. 6, line 13).

With respect to claim 13, Wajima teaches a method comprising the steps of forming the hole includes the sub-step of forming the holes at corners of the substrates of the mother board (see Fig. 12).

With respect to claim 18, Wajima teaches a method comprising the steps of forming the hole includes the sub-step of forming the hole at each vertex point in the printed mother board where four adjacent substrates are met (see col. 4, lines 1-50).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gotoh et al (U.S. 6,320,739).

With respect to claim 7, Gotoh et al discloses a module (Fig. 5) wherein the module further comprising a shield case (7), the shield case being mounted on the substrate for covering the electronic component (2). Gotoh et al does not teach the shield case is made of metal and

Art Unit: 2841

including a leg thereof. The Examiner takes Official Notice that it is known have a module including a metal shield case having a leg thereof. Thus, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the module of Gotoh by having a metal shield case having a leg for securely covering/shielding the electronic component mounted on substrate.

With respect to claim 8, figure 5 of Gotoh et al shows that the lateral side of the substrate (1) projects outwardly from the shield case (7).

With respect to claim 9, figure 5 of Gotoh et al shows that the lateral side of the substrate (1) is *substantially* flush with a lateral side of the shield case (7).

Claim 10 is indefinite, thus it does not define over the prior art of Gotoh et al.

10. Claims 14-15 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wajima (U.S. 6,369,335).

With respect to claims 14-15 and 19-20, Wajima teaches a method comprising the steps wherein the hole is a slot hole (see Fig. 1). Wajima does not teach the step of forming the hole including the step of drilling consecutive round holes to form the slot hole. The Examiner takes Official Notice that it is known to have a method comprising a step of forming the hole and wherein the hole including the step of drilling. Thus, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the reference of Wajima by including a step of drilling a hole for providing a good electrical conductive hole in a conductive material of electrode through substrate.

Art Unit: 2841

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nakano (U.S. 6,344,609) and Kodera et al (U.S. 6,338,893) teach relevant prior art to the invention.

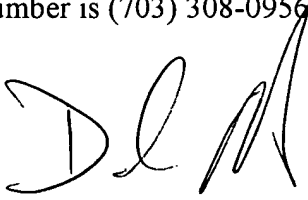
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Y. Tran whose telephone number is (703) 305-4757. The examiner can normally be reached on Monday through Thursday and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin, can be reached on (703) 308-3121. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3431.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

TYT


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